

## CHAPTER 9

### ALLUVIAL VALLEY FLOOR

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## **CHAPTER 9**

### **ALLUVIAL VALLEY FLOORS**

#### **320 Alluvial Valley Floors**

All coal mining operations must provide to the UDOGM a determination that the regulations of R645-302-320 do not apply.

#### **321 Alluvial Valley Floor Determination**

This Alluvial Valley Floor (AVF) determination includes field investigations of geologic, hydrologic, land use, soils, and vegetation for all areas where the mine permit or adjacent areas have a valley holding a stream. Refer to Section 724.400 for additional information.

##### **321.200 Studies Performed During Investigation**

The studies for AVF determination may include:

- o Mapping of unconsolidated stream-laid deposits of areas holding streams, including but not limited to geologic maps of unconsolidated deposits and stream-laid deposits, maps of streams, delineation of surface watersheds and directions of shallow groundwater, topography showing local and regional terrace levels, and topography of terraces, flood plains, and channels showing surface drainage patterns;
- o Mapping of all lands included in the permit and adjacent area subject to agricultural activities, showing the areas of different types of agricultural lands, such as flood irrigated lands, pasture lands, and undeveloped rangelands. Also, the productivity measurements for each vegetative type should be included;
- o Mapping of all lands that currently are or were historically flood irrigated, showing the location of each diversion structure, ditch, dam, and related reservoir, irrigated land, and topography of those lands;

- o Identification of areas which are or are not sub-irrigated, based on groundwater monitoring data, representative water quality, soil moisture measurements, and measurements of rooting depth, soil mottling, and water requirements of vegetation;
- o Identification of areas which are or are not flood irrigable, based on stream flow, water quality, water yield, soils measurements, and topographic characteristics; and
- o Analysis of a series of aerial photographs, including color infrared imagery flown at a time of year to show any late summer and fall differences between upland and valley floor vegetative growth.

### **321.300 Determination of Alluvial Valley Floor Existence**

Based on these studies, the UDOGM will determine that an AVF exists if it finds that:

- o Unconsolidated stream laid deposits holding streams are present; and,
- o There is sufficient water to support agricultural activities as evidenced by:
  - The existence of flood irrigation in the area in question or its historical use;
  - The capability of an area to be flood irrigated, based on stream flow water yield, soils, water quality, and topography; or,
  - Subirrigation of the lands in question, derived from the groundwater system of the valley floor.

As shown on Plate 5-2, 5-4 and 7-5 the mine permit area consists of plateaus and deep canyons. Evaluation of the mine permit area and UDOGM rules for AVF's show:

1. Unconsolidated stream laid deposits holding streams are present in the Lower Cottonwood Canyon area. Adjacent to the mine site the drainage is deep and very steep and is narrow at the bottom. Stream laid deposits are present only in small,

discontinuous narrow patches. Bedrock is exposed in much of the canyon bottom and the stream cascades over exposed bedrock outcrops.

2. There is no flood irrigation in the immediate mine plan area or the adjacent area and no evidence of historical use of flood irrigation. Due to small size, steepness, water availability, land ownership, and short growing season, these areas are not practical for flood irrigation.

In this region, flood irrigation is not practiced in such high mountain drainages. In the cultivated lands along the creek in Straight Canyon which lies approximately 5 miles south of the mine site, flood irrigation may have been historically done. However current observations have shown the fields being irrigated with sprinkler systems.

### **322 Operations Affecting Designated Alluvial Valley Floor**

Based on hydrology and geology of the mine permit area and the adjacent area, there appear to be no alluvial valley floors in the area. A possible AVF exists in the general area along the Creek in Straight Canyon downstream of the mine site.